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also be printed on a separate sheet, will be printed as a page of the answer book.

At the end of this review of two new books on the calculus, the two lines from Pope, quoted at the beginning of the Davis Calculus, seem appropriate.

> "Be not the first by whom the new is tried,
> Nor yet the last to lay the old aside."

PROBLEMS AND QUESTIONS.

Under this heading the MONTHLY will act as a medium for the interchange of ideas on behalf of its readers. While questions proposed merely as puzzles will not necessarily be barred by the editors, yet it is hoped that light on many real difficulties may be sought through these columns; and that many problems arising in the actual processes of investigation may be proposed for solution. In order to encourage this latter form of questions and problems, the names of proposers will not be given when the editors are requested to withold them.

A committee of the Editorial Board, consisting of Professor B. F. Finkel, chairman, Drury College, Springfield, Mo.; Professor R. P. Baker, University of Iowa, and Professor R. D. Carmichael, Indiana University, will have charge of contributions to this department. Correspondence may be addressed to the chairman or to any member of the committee. No problems are printed this month owing to the unusual space occupied by other matter. This department will be resumed in the February issue.

NEWS AND NOTES.

Under this heading the MONTHLY will print information concerning new appointments and promotions of teachers of mathematics, notices of meetings of mathematical associations, biographical and bibliographical notes, references to articles of interest in other mathematical journals, courses in mathematics offered in American universities and any items whatsoever of general interest to teachers of mathematics.

Contributions to this column should be sent to Professor FLORIAN CAJORI, Colorado College, Colorado Springs, Colo., who is chairman of the committee having this department in charge. Other members are Professor G. A. MILLER, University of Illinois, Professor W. H. BUSSEY, University of Minnesota, and Professor W. DE W. CAIRNS, Oberlin College.

Mr. E. R. SMITH, formerly of the Brooklyn Polytechnic Institute, is now head master of the Park School, Baltimore, Md.

Mr. Guy H. Albright, assistant professor of mathematics at Colorado College will spend the second semester of the present academic year at Harvard University and will give his time mainly to the pursuit of graduate work.

Professor G. A. Miller, of the University of Illinois, has been elected corresponding member of the Spanish Mathematical Society.

Professor David Eugene Smith, of Columbia University, delivered an address on "The Teaching of Mathematics" at the annual meeting of the Kansas State Teachers' Association held at Topeka in November, 1912.

Professor H. E. Slaught, of the University of Chicago, delivered an address on "The Present Trend in the Teaching of Secondary Mathematics" at the Iowa State Teachers' Association held at Des Moines in November, 1912.

At the meeting of the college section of the Illinois State Teachers' Association, held at Peoria December 27, 1912, "The Preservation of the Four Years' College Course" was a topic for discussion led by President Thomas McClelland of Knox College.

The winter meeting of the Chicago Section of the American Mathematical Society was merged in the annual meeting of the Society, held at Cleveland, Ohio, December 31, 1912, to January 2, 1913. An account of this meeting will be given in the February issue of the Monthly.

Mr. William Betz, head of the department of mathematics in the East High School, Rochester, N. Y., addressed the meeting of the Principals' Association of New York State at Rochester, December 27, 1912, on the "Final Report of the National Committee of Fifteen on Geometry Syllabus."

The *Mathematics Teacher* for December, 1912, contained the report of the National Committee of Fifteen on Geometry Syllabus in its final form, as presented and accepted at the Chicago meeting of the National Education Association in July, 1912. A large edition of reprints of this report is now ready for distribution through the Commissioner of Education, Washington, D. C. These may be had *gratis* upon application.

The Southern Association of Colleges and Preparatory Schools held its annual meeting at Spartanburg, S. C., in November, 1912. Membership in this association is based upon the standards set by the Carnegie Foundation for the advancement of teaching as applied to both colleges and secondary schools. The only college added to the membership at this meeting was Converse College for women at Spartanburg, where Professor T. McNider Simpson is the aggressive head of the department of mathematics.

The following letter from Professor B. F. Yanney, of the University of Wooster, Ohio, speaks for itself: "I note with interest and pleasure the changes proposed in respect to the American Mathematical Monthly. The new control makes secure its future career. The wider scope of its aims insures still greater usefulness to its patrons. It has been an important source of help to me during the entire period of its existence thus far, and now it promises to be even more so in the years to come. It deserves a steadily growing success, which is my wish and prediction for it."

Mr. Mikami shows in the *Archiv der Mathematik und Physik,* volume XX, page 1, that the proof of the Pythagorean theorem usually attributed to the Hindu Bhaskara (about 1150 A. D.)—based on a figure in which a right triangle is drawn four times in the square on the hypotenuse, so that in the middle there remains a square whose side equals the difference between the two legs of the right triangle—was given early in the Christian era by the Chinese Chang Chun-Ch'ing.

Under the general title "Present Civilization" (Kultur der Gegenwart), the well-known German publisher, B. G. Teubner of Leipzig has announced a long series consisting of sixty volumes. Eighteen of these are to be devoted to the mathematical and the natural sciences. The part devoted to the mathematical sciences is already in press. It is edited by F. Klein, with the collaboration of P. Stäckel, H. E. Timerding, A. Voss, and G. H. Zeuthen.

A letter from B. G. Teubner dated November 23, 1912, states that the remaining two parts of Pascal's "Repertorium der höheren Mathematik" can not appear within the next two or three months. Recent circulars issued by the publishers stated that this work would appear at the end of 1912. The new edition consists of four volumes, and gives in a convenient form a statement of the fundamental theorems of pure mathematics. A similar work devoted to applied mathematics, entitled "Repertorium der Angewandte Mathematik" is also to appear in four volumes, the first of which is expected in the spring of 1913.

The October number of the journal of the new Spanish Mathematical Society, entitled "*Revista de la Sociedad Matematica Espanola,*" calls attention to the fact that there were twenty-five Spanish mathematicians at the International Mathematical Congress held at Cambridge, England, last August. The numbers of the Spanish mathematicians attending the four preceding international mathematical congresses were 1, 3, 1, and 5 respectively. It would appear that the mathematical interest in Spain is rapidly growing at the present time, and it is to be hoped that this will continue to grow under the influence of the new national mathematical society.

A new weekly scientific journal called the *Natur Wissenschaften* is to be started in Germany in January, 1913. This journal is expected to occupy the field covered by *Nature* in England, and *Science* in America. The technical applications of the sciences are, however, to be considered more fully than in these English and American journals, and mathematics is to receive as much attention as may be possible in such a general journal.

The annual meeting of the Southwestern Section of the American Mathematical Society was held at Lincoln, Neb., November 30, 1912. Papers were presented by Professor W. H. Roever of Washington University, Professor S. W. Reaves of the University of Oklahoma, Dr. E. R. Bennett of the University of Nebraska (two papers), Professor Arnold Emch of the University of Illinois, Professor R. D. Carmichael of Indiana University, Professor Florian Cajori of Colorado College, Dr. S. Lefschetz of the University of Nebraska, Dr. E. L. Dodd of the University of Texas, Dr. T. H. Gronwall, Chicago, Ill. (four papers), Professor E. R. Hedrick of the University of Missouri, and Professor Louis Ingold of the University of Missouri. Abstracts of these papers will be printed in the *Bulletin* of the American Mathematical Society.

Of the 177 publications of the Carnegie Institution at Washington, as shown in the latest catalog, five are in pure mathematics as follows: "Synopsis of Linear Associative Algebra" by James Byrnie Shaw, University of Illinois; "Factor Table for the First Ten Millions" and also "Tables Giving a Complete List of Prime Numbers between the Limits 1 and 10,006,721," by Derrick N. Lehmer, University of California; "A Sylow Factor Table of the First Twelve Thousand Numbers" by Henry W. Stager, University of California; and "The Symmetric Function Tables of the Fifteenthic" by Floyd F. Decker, Syracuse University. There are also some other papers of a mathematical nature including one by F. R. Moulton of the University of Chicago on "Periodic Orbits" and several in collaboration with Professor T. C. Chamberlin on "Contributions to Cosmogony and the Fundamental Problems of Geology." The latter are by William D. MacMillan, Arthur C. Lunn, and F. R. Moulton of the University of Chicago, and Charles S. Slichter of the University of Wisconsin.

An outline of the report presented by A. Gutzmer at the Mathematical Congress in Cambridge, England, on the work done by the German sub-committee of the International Commission on the Teaching of Mathematics, is printed in *Science* for December 13, 1912. The German report is composed of five volumes: (1) The secondary schools of northern Germany; (2) The secondary schools of southern and middle Germany. (3) Special problems of secondary mathematics instruction; (4) Mathematics in the technical schools; (5) The teaching of mathematics in elementary schools, and in the training schools for elementary teachers. A significant paragraph in this German report is the following: "This reorganization of secondary education aims at making the youth of our country sympathetic with labor as well as appreciative of the best in modern culture. From this point of view the teaching of mathematics and science assumes a position equivalent to that in history and languages."

It is just announced, as we go to press, that Doctor Oskar Bolza, Honorary Professor of Mathematics, University of Freiburg, Freiburg, Germany, will lecture at the University of Chicago during the summer session of 1913. The topics upon which he will lecture are: Linear Integral Equations and Theory of Functions of a Complex Variable. This is his first return since his retirement from Chicago as Non-Resident Professor. His many friends in this country will welcome him most heartily.